The Maine Installer

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The Holes in Our UST Systems

I used to sleep soundly at night. I used to believe that the leaking underground storage tank (LUST) problem had a technological solution that could overcome human frailty. I have long been, and still remain, an ardent proponent of secondary containment systems for petroleum storage. I have for a long time thought that secondary containment, though not perfect, would adequately protect our environment from petroleum contamination. A few months ago, however, I had a rude awakening.

A Troubling Case

The newspaper headlines announced bluntly that MTBE (methyl tertiary-butyl ether) had been found in a monitoring well located between a gas station and a public water supply well that serves several thousand people. The news reports indicated that a new convenience store/gas station facility, barely 10 months old, had reported that MTBE had been found in an observation well in the tank backfill.

The site had no previous history of gasoline storage. The storage facility was state-of-the-art, with double-walled fiberglass tanks and flexible piping, dispenser sumps, tank top piping sumps, and spill containment and overfill prevention. Only the Stage I vapor recovery riser and Stage II vapor return piping were single-walled. Sensors continuously monitored the piping sumps and tank interstitial spaces for evidence of releases.

As part of a due diligence investigation associated with a property transfer, samples that had been taken from the facility's observation wells tested positive for MTBE. Because of this, a monitoring well some 1,000 feet away that was halfway between the convenience store and the public wells was also sampled. This well also tested positive for MTBE. Soon low levels of MTBE appeared in the nearby public water supply well. As a result, that well was closed, and an alternate well a few hundred feet farther away was put into operation.

Leak Prevention

Tank-nically Speaking

by Marcel Moreau

Where's the Leak?

Immediately, the search was on for a leak. Multiple tightness tests of tanks and piping showed nothing. Interstitial spaces of tanks and piping were dry. Was it a vapor leak? A helium test, where the storage system is filled with helium and then a helium detector is

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Inside This Issue

Still Hardheaded About Coated Steel

A February 23, 1999 memorandum from the U.S. Environmental Protection Agency (EPA) Office of Underground Storage Tanks (OUST) advised State underground storage tank (UST) managers that the Steel Tank Institute (STI) revised standards for coated steel tanks. These standards, ACT-100 (for fiberglass coated steel) and ACT-100-U (for urethane coated steel tanks) now provide recommended practices for applying cathodic protection to those types of tanks.

While we applaud STI for developing industry standards to meet Maine requirements for cathodic protection of coated steel tanks, we need to clarify the statements in the EPA memorandum which indicate ACT-100 and ACT-100-U tanks meet regulatory standards for new and replacement underground tanks without cathodic protection. That is not true in Maine, where coated steel tanks continue to be required to have cathodic protection in order to be installed. Our current rules continue to require all new and replacement underground storage tank facilities be equipped with secondary containment and continuous interstitial space monitoring.

Our continuing experience with coated steel tanks was recently summarized in the January 1998 (Volume 6, Issue 1) of *The Maine Installer*. The subsequent issue (Volume 6, Number 2; April 1998) provided a reader response correctly reminding us that composite tanks are not coated tanks, and are accepted in Maine. The difference between the two is that the outer covering is bonded to

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used to check for leakage, was conducted and, at first, indicated a positive result. Helium levels in the area over the tank, as measured through holes in the concrete cover pad, were higher than expected.

To pinpoint the leak, the concrete mat over the tanks was sawed into large blocks and then carefully lifted off and removed. The gravel backfill over the tanks was vacuumed away so as to leave the piping as undisturbed as possible.

With the tank top and piping exposed, the helium test was repeated. This time, the helium detector was placed right up against the joints and the piping so that the exact location of the leak could be identified.

Quite a few interested parties were watching, including the state environmental agency, the tank installer, and several representatives of the tank owner. But no leak was found. A dead end again.

Spillage Perhaps?

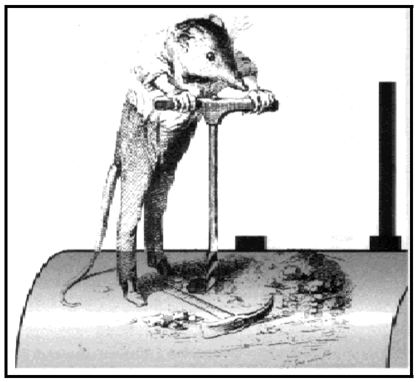
A review of inventory records provided a clue. There were four instances where the records provided strong indications that the regular tank had been overfilled. This was evidenced by a shortage of several hundred gallons in the regular product inventory, while the premium product showed an overage of similar magnitude. The most likelv scenario was that more regular product had been ordered than could fit into the tank, so the excess was delivered into the premium tank. This is known in the trade as "cross-dropping."

The reason excess product had been ordered was perhaps because the fuel manager failed to recognize that the "10,000-gallon tank" had an actual maximum capacity of 9,728 gallons. This volume was further reduced by a float vent valve that had been set conservatively at 18 inches below tank top, yielding an actual tank capacity of only 8,459 gallons.

Given the operational characteristics of float vent valves, it seems likely that the delivery person would have to have dealt with a hose full of product and that some spillage could have resulted.

By What Route?

The spill containment manholes at this site were below-grade models, which is good in terms of keeping surface water out, but leaves some gravel exposed around the rim of the spill container. Product could have infiltrated this backfill area. But then



why was there no significant presence of any other gasoline constituents in the groundwater in the tank excavation and no evidence of contamination in the gravel backfill around the fill pipe?

For this scenario to be credible, we must assume that the other gasoline constituents volatilized and biodegraded, while the MTBE was carried by precipitation down to the groundwater. Because the backfill was clean and well aerated, and the investigation of the site occurred about five months after the last clear indication of an overfill incident in the inventory records, this scenario seems somewhat plausible.

Another possible route for MTBE contamination is being explored by Dr. Gary Robbins at the University of Connecticut. Robbins is finding that MTBE is appearing in groundwater beneath dispensing areas, apparently originating with spillage during vehicle fueling. Because of its solubility, MTBE can be transported by rainwater to groundwater while other gasoline constituents are attenuated or volatilized. It is possible that surface spillage at the dispensers could have contributed MTBE contamination to our mystery spill as well.

A Bit of History

Until the publication of the EPA's tank testing study in 1988, a leak rate of 0.05 gallon per hour had been the longstanding industry standard for leak detection accuracy. This number apparently originated with a study that concluded that leaks of 0.05 gallon or less assimilated naturally and did not pose a significant contamination threat.

While the actual magnitude of a "no-adverse-effect leak rate" could be debated at great length, I think the presence of MTBE in today's motor fuels would add a new dimension to the equation. The incident cited above, as well as several others that I am aware of involving significant MTBE contamination resulting from automobile accidents, where limited amounts of fuel were spilled, casts a new light on the significance of gasoline spillage. Volumes of spilled gasoline that previously would have had no adverse effects can cause significant damage when MTBE is present.

While the official EPA position is that there is no "allowable" leak rate, the evaluation protocols for the various leak detection methods determine threshold leak rates below which a storage system is assumed to be tight. The nagging question is whether a leak detection standard of 0.2 or 0.1 gallon per hour is adequate to protect human health and the environment when MTBE is present.

What Does the Future Hold?

While we are no doubt better off from a leaking storage system perspective today than we were 10 years ago, we are not out of the woods yet, and probably never will be. In the next decade we will likely still be paying for some sins of the past decade, will still be dealing with the foibles of human nature, and will be facing an ever more prevalent

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chemical specter with the initials MTBE.

So what possible routes of escape might gasoline and its constituents (MTBE in particular) find in our future fueling systems? Here are some working hypotheses that I think are worth keeping in mind:

⇒There are holes in our UST systems, but they are below the detection threshold for leak detection technology.

One of my favorite stories involves a double-walled fiberglass tank. During a routine regulatory inspection, the regulator discovered that the interstitial sensor had been disconnected. A subsequent investigation revealed that the interstitial space was half full of product, which explained why the sensor had been disabled. The owner insisted that there was no problem, suggesting that a delivery had mistakenly been made into the interstitial space and pointing to several tightness tests with **"tight"** results.

The product was pumped out of the interstitial space, yet a small amount of product, about a gallon every couple of days, kept reappearing. This was initially explained as residual product draining from inside the ribs of the tank, but the product continued to mysteriously accumulate.

The owner insisted that everything was fine, but the environmental agency was suspicious. Finally a dye was introduced into the product in the tank, and a few days later, the dye appeared in the product that was being removed from the interstitial space. Subsequent internal inspection uncovered a pry bar lying in the bottom of the tank at the fill opening, and a small impact fracture just beyond the edge of the striker plate in the bottom of the tank.

A likely scenario is that a delivery driver, in the process of chopping ice out of the spill container (after removing the fill cap), had slipped and dropped the bar down the fill pipe. The point is that this leak would never have been detected had it not been for secondary containment (the leak rate was less than 0.1 gph), but clearly could have resulted in the release of a significant amount of product over time.

In another recent case, a tank gauge had apparently failed to detect a leak that had gotten into some underground utilities. Review of the automatic tank gauge (ATG) test records indicated a small, consistent loss -- evidently not enough to exceed the leak threshold for the device and fail a leak test.

⇒There are holes in our UST systems, but we are not looking in the right places for them.

Leaks of petroleum vapors from UST systems have not been a traditional target of leak detection efforts, and it may well be that historically the magnitude of these releases has been below the "no-adverse-effect leak rate." Although I do not yet know of any instance where a vapor release has been the source of an environmental problem, theoretical considerations indicate that it could be a possible origin for MTBE contamination.

The potential magnitude of vapor releases has been increased by the widespread use of pressure/vacuum vents that maintain a small pressure on the vapor space of the tank, thus increasing the rate of vapor emissions from any holes near the top of the tank.

Of the leak detection tools at our disposal, only full system tightness testing and soil vapor monitoring are likely to detect vapor leakage from storage systems. Soil vapor monitoring is rarely used and tank tightness testing will be phased out with inventory controls. Storage systems that are subject to Stage II vapor recovery regulations are subject to periodic tightness testing of the vapor space, but these are a relatively small percentage of the tank population at this time. So, for a great many storage systems, the tightness of the tank ullage space and the piping that handles only vapors is never determined.

Other storage system components that escape routine testing are the piping sumps on top of tanks and dispenser sumps. While sumps that contain some amount of water are a fairly common sight, I always wonder whether the sumps that don't contain water are dry because no water is getting in or because whatever water is getting in is also leaking out.

As sumps age and are subject to frost action, possible tank movement, and assorted maintenance activities, it would seem reasonable that, at some point, they could develop holes that would compromise their leak detection role. Yet sumps are not routinely evaluated for liquid tightness.

⇒ There are holes in our UST systems, but the technology to detect them is not being installed properly.

Recently, I heard of a case where secondary containment piping had been

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Still Hardheaded About Coated Steel

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the steel in coated tanks, while it serves as secondary containment in composite tanks. Therefore, they can be distinquished in that the composite tanks include a monitorable interstitial space between the outer covering and the steel while coated tanks do not.

As long as we're on the subject of the new ACT-100 and ACT-100-U standards, we'd like to make one more clarification. These standards indicate that the only cathodic protection monitoring needed occurs within 6 months of installation or "special construction or maintenance activity." In Maine, the regulatory requirement of annual cathodic protection monitoring remains for all cathodically protected steel tanks.

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installed, but leaked product failed to make its way back to the piping sump where the sensor lay in wait to detect it. If leak detection technology is not properly installed, it may not operate properly. This problem, of course, can result in undetected leaks.

⇒ There are holes in our UST systems, and they are being detected, but no one is paying attention.

The routine disregard of alarm signals by facility personnel is a problem of epidemic proportion. I recently heard of a facility where the ATG recorded that an alarm indication had been turned off 47 times in 28 days. This problem is twofold in that false alarms that result from poor equipment design or installation occur too frequently, and facility personnel have not been made sufficiently conscious of the potential significance of an alarm going off.

⇒ There are no holes in our UST systems, but product is being spilled during deliveries.

As illustrated by the story at the beginning of this article, spill events associated with deliveries continue to occur and can result in significant environmental problems, especially when MTBE is involved. A number of factors contribute to this problem, including the owner's lack of awareness of actual storage tank capacity, the ineffectiveness of the overfill prevention technology we commonly use, and the delivery personnel's financial incentive to be quick rather than careful (especially those who are paid by the truckload, not by the hour).

⇒ There are no holes in our UST systems, but product is being spilled during dispensing.

The possibility that routine spillage of gasoline by the end user is a significant source of gasoline releases is very disconcerting. Since talking with Gary Robbins about his research, I have begun to notice that evidence of gasoline spillage is everywhere -- concrete mats around dispensers, fast-food restaurant parking lots, and on-street parking areas all display ample evidence of how often end users spill gasoline. (Did you ever stop to think why the area around dispensers is paved with concrete and not asphalt? Because we learned long ago that asphalt is rapidly degraded by spillage during fueling.)

Historically, this spillage may have been of little consequence because of volatilization and biodegradation, but again, the introduction of MTBE has changed this picture.

The mathematics of consumer spillage look something like this: In 1997, we, as a nation, dispensed about 126 billion gallons of gasoline. If we assume that the consumer purchases an average of 10 gallons per fuel dispensing event and that one in 1,000 fueling operations results in the spillage of one cup of gasoline (that's an individual driver spilling one cup about every 19 years if you fill up once a week), then about 750,000 gallons of fuel are spilled every year at fueling facilities alone. Is this a number we can live with? Is this a number we can live with if MTBE is part of the picture?

The Watchwords

So here are some watchwords we should keep in mind for the next decade:

Out of sight must not be out of mind.

Tank management must be an active and ongoing process on the part of tank owners and operators.

Do it right!

Proper storage system installation and maintenance work is more important than ever.

Early retirement is not an option.

The tank regulator's job is far from over.

I'm also considering the possibility that the most intractable part of the underground petroleum storage problem may prove to be sociological rather than technological: Can we complete 15.75 million underground tank filling operations and 12.5 billion automotive fueling operations each year without spilling a drop?

Marcel Moreau. Reprinted from LUSTLine, Bulletin 30, July 1998

Board Bio; Ray Poulin

Ray joined the Board of Underground Storage Tank Installers in August 1996 when he replaced Rance Knowles as the representative of the Maine Fire Chiefs Association. Ray became the Assistant Fire Chief for the City of Waterville in 1994 and Fire Chief earlier this spring. He began working his way up his career ladder in the Waterville Fire Department in 1976, when he also began working his way up the Ladder 1 fire truck. It seems he made it to the top of both ladders. During this time he served as both a Fire Inspector and a Fire Investigator for over 20 years, and in 1988, he became the Lead Investigator for Waterville's Fire Investigation Unit.

Between 1990 and 1993, Ray also worked for Dirigo Insurance Services as a Risk Control Consultant, where he accomplished risk control inspections for workers compensation and property insurance. In his youth, between 1966 and 1976, Ray worked for W.T. Grant Company. At one time or another, his duties there included Department Manager of the Hardware and Automotive Departments, Sectional Manager, and Buyer.

Ray also served in the Maine Army National Guard between 1969 and 1977, where he attained the rank of Sergeant and a crew chief in the Aviation Section. During this time, he also served as President of the non-commission officers club.

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Component Spotlight: Anti-Siphon.

When damage occurs downstream in the pipeline, an aboveground storage tank system must be equipped with anti-siphon protection to prevent product from leaking or siphoning out of the tank. Anti-siphon protection is simple in concept, but the fluid dynamics become very complex, depending on tank dimensions, piping layout, liquid level, and nature of damage in the line. If system integrity is broken downstream, a product release will occur unless adequate provision has been made for anti-siphon.

When I was a kid, I learned to dip a straw in liquid and remove it with my finger plugging the top end. The liquid remained suspended in the straw as long as I held my finger on it. When I removed my finger, the liquid ran out. This is a simple demonstration of anti-siphon. With no air-displacement, the liquid suspends in the straw, defying gravity. This same principle affects above-ground tanks because liquid is normally stored above the level of the piping and exit ports.

The force needed to hold the liquid is relative to the level of liquid and height of the pipe. Consider an 8' diameter horizontal tank on 2' piers, with a liquid level l' below the top of the tank. In this case, the liquid level is 9' above grade. For every 27"of height, there will be 1 psi of head pressure (water column). Therefore, the head pressure at grade in this example would be 4 psi. (Note: pressure varies slightly for liquids other than water). It does not matter if the water column is in a large tank or a small pipe or combination of both, or whether the pressure is being held from above or below the column. If you hold 9' of water in a straw, the end of your finger would experience a 4-psi vacuum force.

Typically, piping comes out of the top of the tank, extends horizontally past the tank, then downward. Siphon pressures are greatest at the lowest points in the system, where the greatest amount of head pressure exists. Anti-siphon systems must be designed for this worst case scenario.

Most tanks are equipped with a normal vent. One function of the vent is to keep the tank from imploding when product is drawn out, by allowing the tank to breathe air in. Even with a pressure-vacuum vent, the vacuum setting is commonly only one ounce, which is far less than the head pressure. Therefore, the finger-on-the-straw method will not work. The tank is equipped to allow air in, thus liquid is free to flow out.

As mentioned, siphoning occurs as a result of pipeline damage down--stream below the top of the tank. Therefore, the method for prevention must be located in a section of the pipe above the top of the tank. This limits the unprotected pipeline to that portion above the liquid level not effected by head pressure. The most common method for anti siphon employs a valve installed at this point in the pipeline - above the tank - either in the horizontal section or at the elbow. Valves can be either fully mechanical or electronically actuated.

Fully mechanical valves are spring-loaded with the inlet and outlet normally set at right angles to each other, installed at the point where the piping elbows down. They need to be installed in the proper orientation to work correctly. Mechanical valves will be rated either for specific head pressures or for heights, although some brands are adjustable. It is very important to know the fluid dynamics in your system when specifying and installing mechanical valves.

Mechanical valve settings relate to spring tension. The spring tension must be set high enough to withstand the maximum head pressure possible in the system. If set too low, a siphon release can occur. Proper valve settings are explained in the manufacturer's product catalog or other specifications. If uncertain, contact the manufacturer before specifying or installing this equipment.

Oftentimes, when a mechanical valve is adequately sized or adjusted for the maximum head pressure on a system, the spring tension is so great that it causes operational difficulties. Pump motors may become overloaded, operate with reduced flow capacity, or in some cases, not operate at all. Most pressure systems using turbine pumps

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Enjoy Yourself Junior!

Arthur P. ("Junior") Gooldrup Jr. retired as Dead River Company's designated lead installer on February 26, 1999. Junior holds tank installer certificate no. 013 and has been around since dirt. Although he's been famous for giving DEP employees a hard time since the Department began regulating underground tanks, we all found on most, if not all, occasions, Junior was right when there was a difference of opinion.

The U.S. Environmental Protection Agency (EPA) featured Junior in an instructional video tape of proper underground tank installation entitled, "*Doing It Right.*" In Maine's first year of granting awards for service stations that went above and beyond the requirements for environmental compliance, Junior installed three of the five facilities that received awards.

All accounts are that Junior bought himself an RV and set about to drive around the perimeter of the United States. He didn't say which way he'd be going or how long he'd be at any one place. Keeping such matters secret is probably a good idea.

In any event, have fun in your retirement, Junior.

Steven J. Eufemia oversaw cleanup of hazardous spills

Steven John Eufemia, 47, of Brick Farm Circle, a field supervisor with the Department of Environmental Protection, died Wednesday at Riverridge Nursing Home, Kennebunk, following a lengthy illness.

Mr. Eufemia worked in the DEP's Portland office for about 18 years, supervising a crew that investigates between 800 and 900 oil and hazardous waste spills or incidents annually.

"Steve is legendary within the division in terms of the things he's dealt with over the years," said David Sait, director of the Division of Response Services for the DEP. Among the projects he worked on were the 200,000-gallon oil spill in 1996 by the 560-foot tanker Julie N.

"In the initial stages there was a great deal of oil around the vessel," in Portland Harbor, said Sait. "We agreed that that incident would be won or lost right there at the vessel. Steve just worked night and day for several days to help make sure that they got the oil out. His effort continued throughout the incident."

Mr. Eufemia won national recognition for his innovative work in handling a spill of 65,000 gallons of jet fuel into a sensitive marshland at Brunswick Naval Air Station.

"It was his plan to burn off the fuel," Sait said. "He convinced the captain in charge of the base it was the right thing to do, and it was a tremendous success."

As a result of that incident and others, he was often invited to speak around the country to peers in his field. A few years ago, he was given the Evelyn Jepshom Award, the highest honor given by the Maine DEP.

Mr. Eufemia created a tremendous level of respect for the department and for himself, said Sait. He provided the leadership in many emergencies, and

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Component Spotlight: Anti-Siphon.

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have fewer problems overcoming heavy spring tension, but there may still be excessive load on the pump motor. Therefore, it is important to realize that the solution is NOT to reduce the spring tension or remove the spring. This will cause the device to malfunction and increase the risk of having a siphon release. Do not adjust the spring setting without knowing precisely what you are doing, or without first consulting the manufacturer.

Electronic solenoid valves are more commonly used, partially because when specified correctly, they will not effect pump performance, motor life, or product flow. Electronic valves stay in the normally closed position, and open only upon actuation, such as when a pump is turned on. When the valve is open, there is minimal flow restriction in the line. Electronic solenoid valves typically have a threaded inlet and outlet in a straight-through fashion and are available in various sizes. They require either a 120V or a 240V electrical connection. Valves must be explosion proof, rated for hazardous locations, and capable of operating under a zero pressure differential.

Electronic solenoid valves are usually located in the horizontal section of line immediately exiting the top of the tank, normally downstream from a gate valve and check valve and before the elbow. The valve needs to be mounted horizontally with the solenoid component mounted up to ensure proper operation. Again, it is important to first consult the manufacturer for proper selection and installation. Misapplication may not only lead to malfunction of the valve, but could also result in serious injury because of the electricity involved.

Both the fully mechanical and electric solenoid type antisiphon valves should be equipped with expansion relief capability. This feature allows product to bleed back to the tank when pressure in the line builds up beyond normal design limits, such as when piping is exposed to the sun. If expansion relief is not provided, pressure in the lines may cause product leaks around seals, valve stem packing, joints and other weaker components in the system.

As a final note, it is especially important to follow all federal, state, and local codes when specifying or installing anti-siphon equipment. Anti-siphon provisions are intended to reduce the risk of release when storing and handling certain liquids aboveground. This is both an environmental issue, and with flammable liquids, a fire safety issue. Successful application involves not only doing what is required, but also knowing as much as possible about what you are doing.

Charlie Glab, Morrison Brothers Co., Reprinted from Tank Talk, Volume 14 No. 2, March/April 1999, Published by the Steel Tank Institute, Lake Zurich, IL.

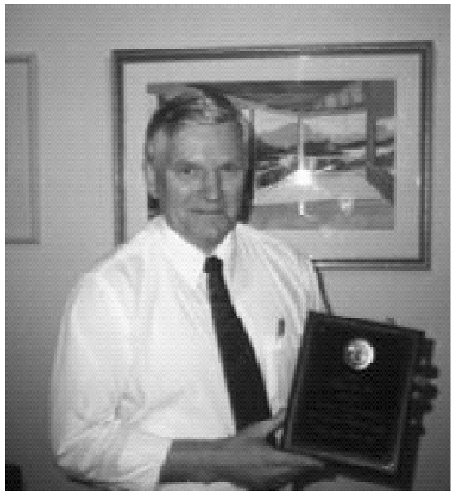
Good Luck Allan Ball and Bruce Probert

After three and a half years on the Board of Underground Storage Tank Installers, Allan Ball left both the Board and his position as Direction of the Department of Environmental Protection's Bureau of Remediation and Waste Management in order to pursue his personal life and enjoy his family.

Allan is from Lynn, Massachusetts where he was most recently an officer in two real estate and construction management firms, Sluice Associates, Inc. and Chartwell Properties Corporation. In this capacity, he had first had experience as an underground tank owner who had to deal with a leak. Prior to that experience, he served as the first Executive Director for the startup of the Lynn Water and Sewer Commission. He also managed the facilities and oversaw construction for AT&T Information Systems and New England Telephone for the New England states and New York.

He holds a Bachelor's Degree in Mechanical and Structural Engineering from Northeastern University along with an Associate Degree in Architectural Engineering from the Wentworth Institute of Technology. He's had a variety of other specialized course work from the Computer Programming Institute, the University of Alabama, and the University of Wisconsin. He has licenses or memberships from the American Society of Civil Engineers (ASCE), the Society of American Value Engineers (SAVE), Massachusetts Building Congress, a Massachusetts Class 1 Building Contractors' License, a Massachusetts Real Estate License, and a Massachusetts Construction Supervisor's License.

Joseph B. ("Bruce") Probert will also be leaving the Board as soon as a replacement for him (hard to do) can be found. Bruce served the Board admirably as the representative from the Maine Chamber of Commerce and Industry for six (6) years. He completed the last term permitted to him by law on December 31, 1998.



Allan Ball accepts plaque of appreciation from the Board of Underground Storage Tank Installers

However, the law also allows a member to serve until a new one is appointed, and so far none has been. Bruce has graciously continued to serve in the interim.

Bruce received two degrees from the University of Maine at Orono in 1960; Forestry, and Pulp and Paper Technology. He went to Great Northern Paper where he worked as a research engineer and then to the military where he spent two years as an officer in the Intelligence Corps. In 1963, he moved to Sprague Energy in Searsport as a stevedore and worked his way up to now be the Maine Division Manager.

Steven J. Eufemia

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preferred to take on a high-risk detail, such as drilling a hole into a tanker truck, rather than putting someone else at risk.

For that he was highly respected by the fire departments around southern Maine, Sait said. "He didn't lust for recognition or praise. A job well done was good enough for him."

Born in Norwalk, Conn., a son of Frank and Ruth Chittum Eufemia, he graduated from Norwalk High School in 1970 and received an environmental science degree from the University of Maine, Orono, in 1974.

After college he lived in Florida for a while and worked as a landscape contractor. As a young man, Mr. Eufemia worked as an offshore fisherman out of Kennebunkport, a boatbuilder, and also as a railroad trackman for Pennsylvania Central Railroad in New York City.

He enjoyed the outdoors, particularly hunting, fishing, landscaping and mountain biking with his children, and riding his 1997 Harley Davidson Sportster. He was active in the Kennebunk Fish and Game Club, and helped run an annual fishing derby for children.

Surviving are his wife, Martha Gray Eufemia of Wells; a son, Samuel John of Wells; a daughter, Meredyth Francesca Eufemia of Wells; and a sister, Susan Boemmels of Kennebunk.— *Will Bartlett*

Portland Press Herald Wednesday, June 2, 1999.

Ray Poulin

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He holds an Associates Degree in Fire Science Technology from Southern Maine Technical College (SMTC). He has completed a number of other courses, including a National Fire Academy Command Course, HazMat Technician and Incident Commander Course, Emergency Response Technician, and numerous others.

Ray belongs to numerous professional and civic organizations, including the International Association of Fire Chiefs, the New England Association of Fire Chiefs, Maine Fire Chiefs Association, Central Maine Fire Chiefs Association, National Fire Protection Association, Maine State Federation of Firefighters, International Association of Fire Investigators, National Association of Fire Investigators, Maine Fire Prevention Resource Exchange, Kennebec Valley Disaster Committee, Kennebec Valley Regional Haz-Mat Response Team, Maine Building Officials Association, Waterville E-911 Committee, Waterville Elks Lodge, and the Board of Directors of the St. Francis Credit Union.

His response to the question of whether or not he's lived in Waterville all his life is, "Not yet." He is fluent in French as well as English, and enjoys auto racing, traveling, photography, and spending time with family. He has been married for 29 years to Dianne and has two daughters as well as a granddaughter.

New DEP Tank Registration Coordinator

Julie Churchill Durkee was hired in November as the new Tank Registration Coordinator. Julie has a master's degree in geology. She spent most of her career working in the consulting field as well as working for a Soil and Water Conservation District. She is pleased to join the DEP and Licensing Unit.

Julie has revised the tank registration form, which will have current codes to match the newer technology. She also worked on streamlining the application. In addition, Julie developed a short registration form for tank and piping modifications for an existing registered tank. Again, her hopes are to streamline the process to make registration less confusing and time consuming

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